Haiti
Health Threat Assessment

Outline

- Situation
- Background
- Vector-Borne
  - Dengue Fever
  - Malaria
- Infectious Diseases
- Environmental
- Immunizations
- Mortuary Affairs
- Internally Displaced Persons
- Stress
- Safety
- References

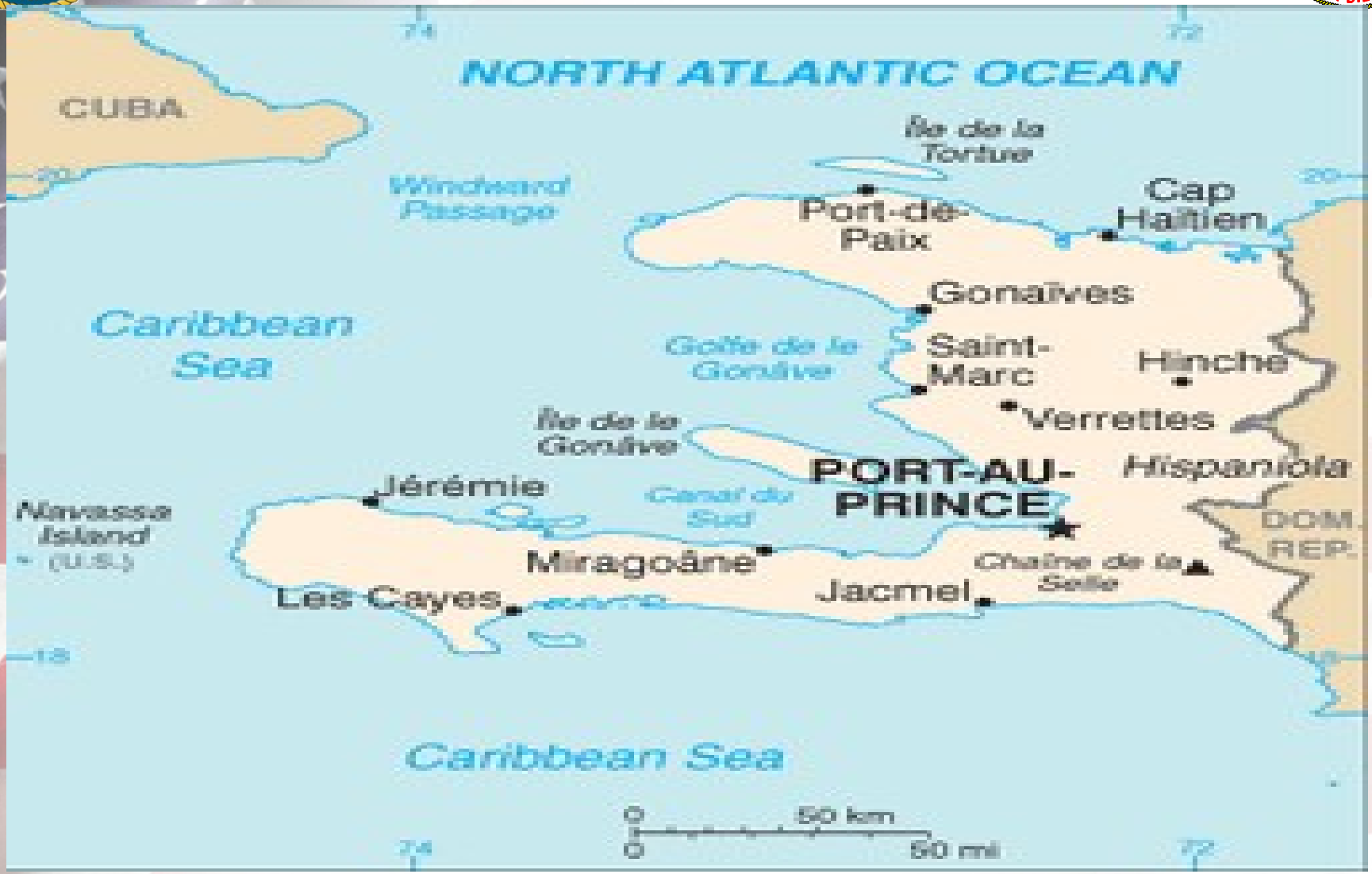
Situation

- Magnitude 7.0 earthquake struck near Port-au-Prince on 12 Jan
- Multiple aftershocks followed
- Extensive damage to infrastructure included disruptions to travel, telecommunications and power
- Shortages of food, water and medical reported
- Occurrences of looting and civil unrest present

Situation

- Poorest organic health care of any country in the Western Hemisphere
- Trauma care and medical logistics are inadequate to respond to current situation
- As of 13 Jan all hospitals in Port-au-Prince filled to capacity
- Shortage of replacement blood supplies
- Eliazard Germain Hospital and Petit freres at Soeurs facility have collapsed

Haiti


NORTH ATLANTIC OCEAN
CUBA
Île de la Tortue
Windward Passage
Port-de-Paix
Cap Haïtien
Gonaïves
Caribbean Sea
Golfe de la Gonâve
Saint-Marc
Hinche
Verrettes
Île de la Gonâve
PORT-AU-PRINCE
Hispaniola
Jérémie
Canal du Sud
Navassa Island
(U.S.)
DOM. REP.
Miragoâne
Chaîne de la Selle
Jacmel
Les Cayes
Caribbean Sea
50 km
50 mi

Background

- Population: 9.035 million
- 44% illiterate
- 70-80-% unemployed
- Still recovering from 08’ hurricanes (Fay, Gustav, Hanna, and Ike) which damaged nearly 50,000 homes and destroyed 70 percent of the country’s crops
- Wide-spread deforestation for farming and fuel has led to a loss of 98% of its plant cover, which can predispose to sedimentation polluting waterways

Background

Topography

- Western 1/3 of Hispaniola (other 2/3 Dominican Republic)
- 2nd largest island in Caribbean
- Haiti approximately size of Maryland

Climate

- Semiarid climate
- Rainy seasons: Apr-Jun, Aug-Oct
- Mean annual temperature in the plains area 81 deg F

Vector-Borne

- Increased exposure to the elements for over an estimated 300,000 Haitians will increase risk of vector–borne illnesses
- Austere living conditions (no air conditions or screened quarters), created by earthquake damage or fear of subsequent aftershocks will particularly increase risk of contracting dengue fever

Dengue Fever

- Debilitating viral illness lasting 2-7 days
- Symptoms include fever, headache, muscle and joint aches, anorexia, nausea, vomiting and possible rash
- Fatalities rare, full recovery is the norm, although fatigue may last weeks after illness
- No vaccine available
- Prevention involves avoiding mosquito bites

Dengue Fever

- Caused by *Aedes aegypti* mosquito
- Abundant in cities where it breeds in water-filled containers
- Bites typically in early morning or late afternoon; will feed at night in lit rooms
- Feeds indoors or outdoors

Dengue Fever

- Removing newly created rain-fed breeding sites in the rubble is necessary
- Improve water distribution to eliminate large-scale outdoor water storage near camps

Malaria

- 99% Plasmodium falciparum
- Anopheles albimanus is vector
- No reports of drug resistance
- Risk greatest in coastal areas

Malaria

- Symptoms include fever, chills, headache muscle aches and fatigue

- Women who are pregnant should avoid being exposed to the threat of Malaria which exists in Haiti due to the health risks it imposes to mother and unborn child

Malaria

Pre-deployment through deployment options:

- Chloroquine 300 mg/week, start 1-2 weeks prior, weekly during stay and continue for 4 weeks after departure.
- Mefloquine 250 mg/week, start 2 weeks prior, weekly during stay and continue for 4 weeks after departure (not approved if on flight status)
- Doxycycline 100 mg/day, start 2 days prior, daily during stay and continue for 4 weeks after departure.
- Atovaquone 250 mg/day, start 1-2 days prior, daily durind stay and continue for 7 days after departure

Malaria

Post-Deployment:

- Primaquine 30 mg/day x 2 weeks starting the day leaving theater
- Ensure G6PD status established

Environmental

Environmental

- Re-suspended particulates during recovery or reconstruction pose both short and long-term risks to personnel in Haiti
- Burning of debris or combustible materials will also contribute to adverse health outcomes
- Particulates present in dust may include asbestos from building materials, cement, and fungal spores from the soil

Environmental

- Additionally, toxic gases generated by burning of tires, plastics or building materials as sources of fuel are of concern
- Increased respiratory symptoms, particularly in asthmatics can be mitigated through use of personnel protective equipment
- Chemical contamination of soil and surface water released from damaged industrial facilities containing petroleum, oil or lubricants is of additional concern

Infectious Diseases

- 5% commercial sex workers HIV+
- 2-7% CSWs HBV+
- 338/100,000 have active tuberculosis

- TST recommended before arrival in country and 6-8 weeks after return

Disease	Risk	PPE
Food-borne and waterborne diseases		
Diarrhea -Bacterial	High	Cook food well; ensure water boiled, filtered or chemically treated; frequent hand washing; adequate sanitation, avoid local dairy products (brucellosis); routine immunization (hepatitis A, typhoid fever) Avoid unripe Ackee fruit, which may cause respiratory paralysis and death. Avoid large reef fish and shell fish during seasonal algal blooms that might contain ciguatera
Diarrhea-Protozoal	High	
Hepatititis A	High	
Typhoid/paratyphoid fever	High	
Brucellosis	Intermediate	
Hepatitis E	Low	
Diarrhea-Cholera	Low	
Vector-borne diseases		
Dengue fever	High	DEET on exposed skin; permethrin-treated bed nets and clothing; reduce exposure (sleeves down); Malaria chemoprophylaxis
Malaria	High	
West Nile virus	Intermediate	
Water-contact and soil-contact diseases		
Leptospirosis	High	Avoid skin contact with fresh surface water or moist soil that may be contaminated with human or animal feces
Soil transmitted helminths	Intermediate	
Animal Contact		
Rabies	Intermediate	Avoid animals; post-exposure prophylaxis for suspect bites
Blood or body fluid contact		

FOUO

Infectious Diseases

Miscellaneous:

- Loperamide and quinolone antibiotic (ciprofloxacin) should be maintained in adequate quantities to prevent mission degradation
- H1N1 is expected to contribute to the infectious disease burden, but does not pose an urgent risk due to warmer climate
- New World screwworm (NWSW) is endemic to Haiti and wounds of injured humans or animals should be cared for properly

Immunizations

- Hepatitis A – series complete, or dose # 1 > 14 days prior to departing
- Hepatitis B – series complete, or dose # 1 > 14 days prior to departing (can use accelerated 0,7,21-30 day schedule)
- Tetanus-Diphtheria – within last 5 years preferable (not 10, to prevent need for booster)
- MMR – proof of vaccination or proof of positive antibody titer
- Influenza – seasonal and H1N1 (injectable vs. live if less than 10 days until in country when patient contact expected)
- Typhoid – IM injection preferred, due to one-time dose
- Rabies – for individuals at occupational risk of exposure

Immunizations

- The low rate of coverage prior to the earthquake, coupled with deep laceration injuries, increase vulnerability to tetanus
- Low measles vaccination rates in Haiti, combined with overcrowding in shelters may lead to a measles outbreak
- Lack of shelter may increase exposure of children to rapid animals

Immunizations

- Tetanus toxoid is recommended for treating Haitians with suspect wounds, with tetanus immune globulin used for very serious wounds
- Series of rabies vaccinations must begin as soon as possible after exposure since rabies is invariably fatal
- Post-exposure rabies vaccination is frequently unavailable in Haiti
- Mass childhood vaccination against measles can preempt a serious measles outbreak

Mortuary Affairs

- Dead and decaying bodies do not pose a risk for infectious disease outbreaks in mass casualty settings
- Similarly, rotting animal carcasses do not pose a significant infectious disease risk
- Direct contact with blood and body fluids of recently deceased pose a minimal risk
- HBV, HCV, HIV and tuberculosis are a small risk even though the diseases are highly prevalent in Haiti

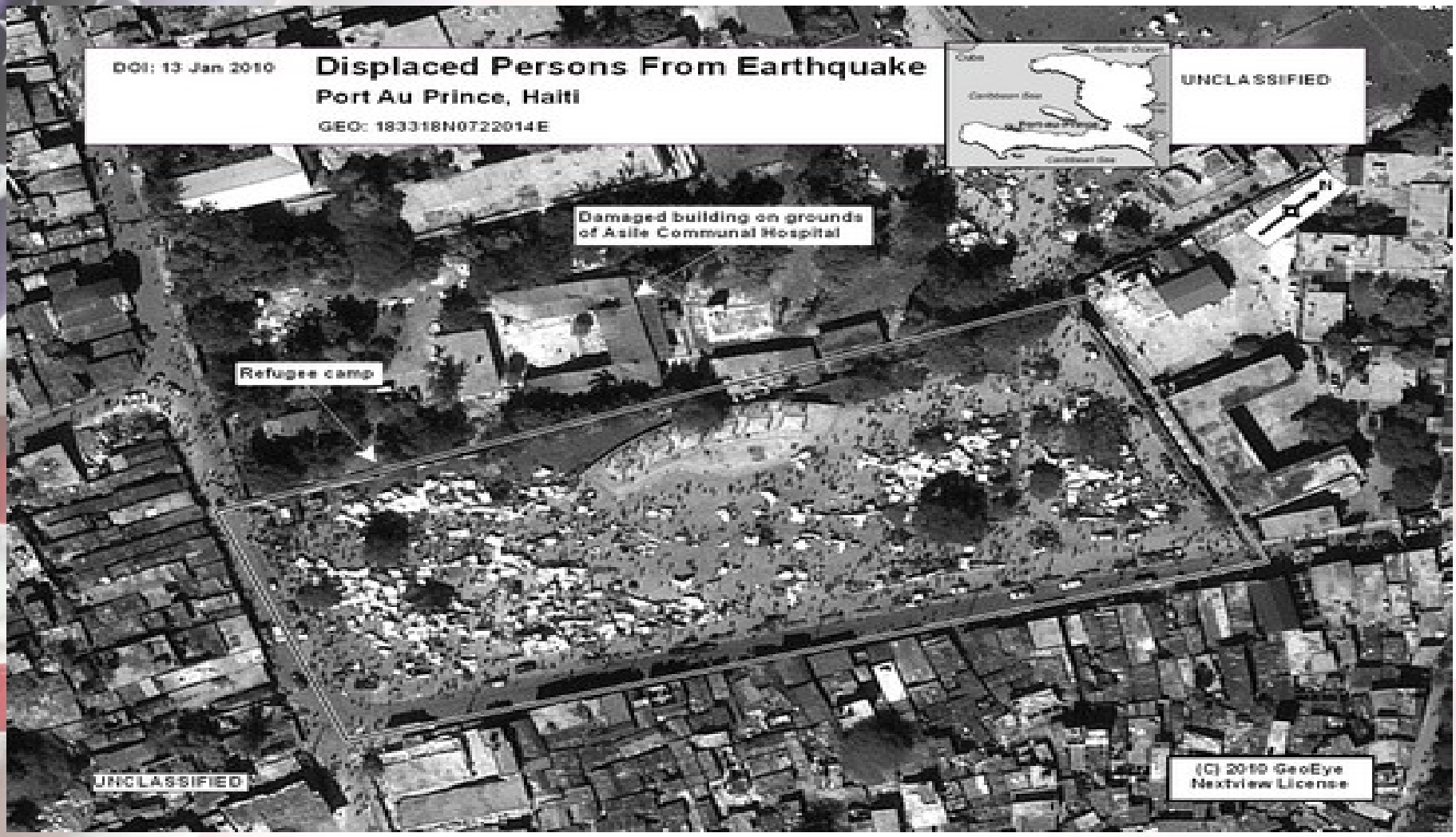
Mortuary Affairs

- Universal blood and body fluids precautions
- Disposal or disinfecting used gloves
- Wash hands after handling bodies
- Avoid cross-contamination of personal items
- Disinfecting ambulances and equipment appropriately
- Hepatitis B series complete on all those occupationally exposed

Internally Displaced Persons

- Due to infrastructure and magnitude of earthquake, thousands will be displaced for an extended period of time
- IDP camps not supported by public health measures will result in increased rates of respiratory and diarrheal illnesses
- With routine childhood vaccination rates being low, the likelihood of an outbreak is increased
- Children under the age of 5 at greatest risk

Internally Displaced Persons



Internally Displaced Persons

- Provide early assistance with sanitation and potable water to reduce diarrheal disease
- Organize vaccination campaigns (measles)
- Security to prevent assaults from occurring and food and water being misused as capital

Stress

Normal Reactions to a Disaster Event:

- Profound sadness, grief, and anger are common
- May not want to leave the scene until the work is finished
- Will likely try to override stress and fatigue with dedication and commitment
- May deny the need for rest and recovery time

Stress

Ways to Help Manage Your Stress:

- Limit on-duty work time to no more than 12 hours per day
- Rotate work assignments between high stress and lower stress functions
- Drink plenty of water and eat healthy snacks and other energy foods
- Take frequent, brief breaks from the scene when you are able
- Keep an object of comfort with you such as a family photo, favorite music, or religious material
- Stay in touch with family and friends
- Pair up with another responder so that you can monitor one another's stress

Safety

- Avoid walking alone at all times
- Cars driven on right side of road in Haiti
- Unlit vehicles are common, and many people drive while intoxicated and do not respect traffic rules
- No public transport is recommended

Safety

- Power lines will be down in many places for a number of days following the earthquake; assume they are live at all times and avoid
- Assume any structure to be unstable unless it has been cleared by a qualified engineer

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